

ATMOSPHERIC ELECTRICITY.

THUNDERSTORMS.

Description of the more severe thunderstorms reported for the month is given under "Local storms."

Thunderstorms were reported as follows: East of the Rocky Mountains they were reported in the greatest number of states, 31, on the 17th; in 20 to 30 on the 1st, 5th to 8th, 10th, 11th, 12th, 16th, 18th, 19th, 20th, 25th, and 26th; in 10 to 19 on the 2d, 3d, 4th, 9th, 13th, 14th, 15th, 21st to 24th, 27th, 28th, and 29th; and in 9 on the 30th and 31st.

East of the Rocky Mountains thunderstorms were reported on the greatest number of dates, 31, in Florida; on 20 to 30 in Alabama, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, South Carolina, South Dakota, Tennessee, and Texas; on 10 to 19 in Arkansas, Georgia, Iowa, Kentucky, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, and Wisconsin; and on 1 to 9 in Connecticut, District of Columbia, Illinois, Indiana, Maine, Maryland, Montana, Rhode Island, Vermont, Virginia, and West Virginia. Delaware and Indian Territory were the only states in which thunderstorms were not reported.

West of the Rocky Mountains thunderstorms were reported in Arizona on the 1st to 6th, 12th to 26th, 28th to 31st; in California on the 3d, 4th, 27th, and 29th; in Colorado on the 1st to 31st; in Idaho on the 3d, 4th, 6th, 13th, 19th, 20th, 21st, 29th, and 30th; in Nevada on the 1st to 6th, 8th, 11th, 12th, 13th, 16th, 22d, and 25th to 30th; in New Mexico on the 1st, 8th, 14th, 16th to 19th, 21st, 27th, and 31st; in Oregon on the 1st, 16th, 17th, and 21st; in Utah on the 1st, 3d to 7th, 11th, 13th, 14th, 16th, 18th, 20th, 21st, 25th, 26th, and 30th; in Washington on the 5th, 6th, 13th, 17th, 19th, 20th, and 21st; and in Wyoming on the 3d, 8th, 13th, 14th, and 22d.

AURORAS.

Auroral displays of August, 1893.

Date.	Station.	Extent of display.		Remarks.
		Azimuth.	Altitude.	
5	Duluth, Minn.....	Cov'd 90	18	Arch, with streamers.
6	Red Wing, Minn.....	90 to 270	60	Waves of light nearly to zenith.
6-7	Eastport, Me.....	.....	10	Low arch; waves of light to zenith.
6-7	New London, Conn...	135 to 225	.....	Streamers; waves of light, having a quick motion, extended nearly to zenith.
6-7	Oswego, N. Y.....	.....	.....	Brilliant flashes of light near zenith and a partial corona a few degrees s.w. of zenith.
6-7	Chicago, Ill.....	135 to 270	.....	A narrow belt of pale green, with occasional white streamers and flashes of light to zenith.
6	Riley, Ill.....	45 to 225	.....	Arch in n., with streamers in motion from e. to w.
6	Alpena, Mich.....	90 to 225	80	Beams of white light.
6-7	Detroit, Mich.....	135 to 225	80	White light, with occasional pink tint; waves of light moved with great rapidity to zenith.

Auroral displays—Continued.

Date.	Station.	Extent of display.		Remarks.
		Azimuth.	Altitude.	
6-7	Manistee, Mich.....	.....	60	Flashes of light to zenith; beams of light moved slowly from w. to e.
6	Marquette, Mich.....	In north.	Zenith.	Waves of silvery light to zenith, and luminous clouds to 140°.
6-7	Sault Ste. Marie, Mich	135 to 315	100	Tea-green color, with a waving motion and luminous beams of light.
6-7	La Crosse, Wis.....	150 to 240	.....	Streamers to 45° and bright waves of light to beyond zenith.
6-7	Milwaukee, Wis.....	.....	.....	An arch, with streamers of white at times, covering entire sky; a curtain-like appearance with a waving motion.
6-7	Minneapolis, Minn...	112 to 247	.....	Arch, with streamers to zenith and a few beyond.
6	Saint Cloud, Minn.....	.....	.....	Bright waves and streamers, rapidly changing in form and color.
6	Saint Paul, Minn.....	180 to 310	20	Faint white light; numerous streamers to 70° appeared and disappeared in rapid succession.
6	Amara, Iowa.....	Cov'd 90	10	Streamers and waves of light to 45°.
6-7	Des Moines, Iowa....	In north.	.....	Arch in n., with many bright streamers of green and pink.
6-7	Dubuque, Iowa.....	135 to 225	.....	Slender beams nearly to zenith; a cloud-like formation appeared and disappeared in rapid succession.
6	Sioux City, Iowa.....	135 to 225	45	An arch, with waves of light of a greenish tint; shaft of light in n.w. to zenith.
6-7	Bismarck, N. Dak....	90 to 270	105	A band of light, with a quick motion, like the folds of a curtain; bright purple streamers.
6	Fort Buford, N. Dak.	In north.	.....	A corona in n.; the display was very brilliant and active.
6-7	Huron, S. Dak.....	110 to 300	50	A diffused light in n.; beautiful beams of light to 50°.
6	Midland, S. Dak.....	135 to 315	.....	Bright waves of light to zenith.
6-7	Rapid City, S. Dak....	95 to 185	.....	An arch s. of zenith, with "merry dancers."
6	Delriehs, S. Dak.....	.....	.....	Arch resting on dark segment; white streamers.
6-7	Yankton, S. Dak.....	150 to 220	45	Bright glow; small streamers.
6	Pierre, S. Dak.....	120 to 245	45	Arch in n.; small streamers.
6-7	Helena, Mont.....	90 to 270	.....	Beam of light, followed by occasional shooting beams of light to altitude 25°.
6-7	Miles City, Mont....	In north.	.....	Tremulous beams, with a waving motion; "merry dancers" to zenith.
6-7	Kearney, Nebr.....	160 to 225	.....	Pale orange color resting on a dark arch; streamers to 45°.
6	Valentine, Nebr.....	In north.	24	Rays of white light resting on a dark segment; pale streamers moving from n. to w.
7	Spokane, Wash.....	In north.	20	Began at 12.10 a.m.; diffused light in n. on dark segment; several beams to altitude 55°.
6	Albany, Oregon.....	135 to 225	50	Pale yellow streamers tinged with rose color.
6	Heppner, Oregon.....	.....	60	Luminous beams in n. sky; streamers in continual motion.
7	Saint Paul, Minn.....	170 to 205	80	Vertical beams appeared and disappeared in rapid succession.
12	Marquette, Mich.....	.....	.....	Arch resting on dark segment; a silvery white light, with upper edges tinged with pink.
12	Bismarck, N. Dak.....	165 to 240	15	Arch; few indistinct streamers.
13	Cheyogan, Mich.....	Cov'd 50	.....	Brilliant streamers to zenith.
15-16	Pierre, S. Dak.....	130 to 220	30	Cloud-like appearance, through which light passed in rippling waves.
18	Marquette, Mich.....	95 to 275	Zenith.	Scattered luminous clouds in n.; streamers to zenith.
18	Milwaukee, Wis.....	In north.	45	Arch; rays of light in n.
18	Red Wing, Minn.....	170 to 190	70	Faint gray light.
18	Saint Paul, Minn.....	170 to 210	60	Faint white light, with numerous beams.

STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for August, 1893, of the directors of the various state weather services:

ALABAMA.

Temperature.—The mean was 0.6 above the normal; maximum, 100, at Brewton and Eufaula, 29th; minimum, 50, at Newburg, 23d; greatest monthly range, 48, at Newburg; least monthly range, 19, at Elba.

Precipitation.—The average was 0.42 above the normal; greatest monthly, 10.51, at Union Springs; least monthly, 0.20, at Clanton.

Wind.—Prevailing direction, south. — *W. M. Dudley, Observer, Weather Bureau, Montgomery, director.*

ARIZONA.

Temperature.—The mean was normal; maximum, 116, at Fort Mohave, 2d; minimum, 40, at Flagstaff, 31st; greatest monthly range, 51, at San Carlos; least monthly range, 26, at Red Rock.

Precipitation.—The average was 0.88 above the normal; greatest monthly, 8.99, at Fort Huachuca; least monthly, 0.88, at Yuma.

Wind.—Prevailing direction, southwest. — *W. Burrows, Observer, Weather Bureau, Tucson, director.*